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EXAMINER	
BROWN JR, NATHAN H	

ART UNIT	PAPER NUMBER
2121	

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/647,949	BOLLACKER ET AL.	
	Examiner	Art Unit	
	Nathan H. Brown, Jr.	2121	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *(3)* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10,12-16,18-27 and 29-34* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10,12-16,18-27 and 29-34* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Examiner's Detailed Office Action

1. This Office is responsive to the communication for application 10/647,949, filed September 18, 2006.

2. Claims 1-10, 12-16, 18-27, and 29-34 are pending; claims 1, 13, 14, 16, 18, 19, and 26 are amended; claims 11, 17, and 28 are canceled; claims 2-10, 12, 15, 20-25, 27, and 29 are in their original form; and claims 30-34 are new.

3. After the first office action, claims 1-3, 6, 7, 10, 13-16, 20, 22, 24, 26, and 27 stand rejected; claims 13, 14, and 26 are objected to for minor informalities; and claims 4, 5, 8, 9, 11, 12, 17-19, 21, 23, 25, 28, and 29 are objected to as being dependents of rejected base claims.

Claims 1, 10, 12, and 26 are rejected under 35 U.S.C. 102(b) as being anticipated by *Chryssafidou*, "DIALECTIC: Enhancing essay writing skills with computer supported formulation of argumentation", 1999.

Regarding claim 1. *Chryssafidou* teaches a system (*see* Abstract) for editing and displaying a structured argument (*see* p. 10, Fig. 6), having a plurality of associated parameters (*see* p. 10, Fig. 6, *Examiner interprets: claim, argument, support, refute, conjunction, and opposed claims (show in the screen shot key) to be a plurality of associated parameters of a structured argument.*), the system comprising: a user interface that graphically displays the plurality of

parameters at a user accessible display and receives input from a user defining the value of a selected parameter (*see* p. 10, Fig. 6); and a computational engine that alters the selected parameter to the defined value, updates the plurality of parameters according to the defined value of the selected parameter, and provides the altered parameters to the user interface, such that the display is updated in real time to reflect the user input (*see* Abstract, *Examiner interprets DIALECTIC to be the computational engine.*).

Regarding claim 10. *Chryssafidou* teaches the system of claim 1, being implemented as computer executable instructions on a computer readable medium (*see* Abstract).

Regarding claim 12. *Chryssafidou* teaches the system of claim 1, the plurality of parameters defining an argument model (*see* p. 6, "The model of pragma-dialectic approach to argumentation suggests heuristic functions indicating what moves[6] should be undertaken in resolving a difference of opinion. These are central in the research that underpins the design of Dialectic." and *see* p. 10, Fig. 6, *Examiner interprets: claim, argument, support, refute, conjunction, and opposed claims (show in the screen shot key) to be a plurality of associated parameters of an argument model.*).

Regarding claim 26. *Chryssafidou* teaches a system (*see* above) for editing and displaying a structured argument (*see* above), comprising a plurality of parameters (*see* above), comprising: means for graphically displaying the plurality of parameters, each having an associated value (*see* above); means for receiving input from a user, the input comprising a request to modify

respective values of at least one selected parameter from the plurality of parameters (*see* p. 10, Fig. 6, "**Tools palette**: This is the main feature of the drawing area where the user designs the argumentation using text boxes, graphic arrows and links."); means for modifying the values of the at least one selected parameter and at least one other parameter from the plurality of parameters (*see* p. 10, Fig. 6, *Examiner asserts that Fig. 6 shows the palette of modifiable objects representing the parameters of the argument.*); and means for updating the modified parameter values at the means for displaying in real time in response to the user input (*see* p. 10, Fig. 6, "**Tools palette**: ..." and "The system feedback: The system provides feedback on the structure of the arguments –not
the content of them- only by request.", *Examiner asserts that the system places the feedback in the commenting area.*).

Claims 2-3, 6-7, 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *SYSTAT*, "TableCurve 2D GENERAL FEATURES", 2002.

Regarding claim 2. *Chryssafidou* teaches the system of claim 1. *Chryssafidou* does not teach the plurality of parameters comprising respective confidence values for a plurality of hypotheses. SYSTAT does teach the plurality of parameters comprising respective confidence values for a plurality of hypotheses (*see* §Data Input, "Up to 65,536 points in data table", *Examiner asserts a data table is capable of storing a plurality of parameters comprising respective confidence values for a plurality of hypotheses where the plurality of parameters comprising respective confidence values for a plurality of a hypothesis are stored in a row.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine

Chryssafidou and SYSTAT to visualize their data, increase their analytical power with statistics, and completely automate their analysis (*see* SYSTAT, "Overview").

Regarding claim 3. *Chryssafidou* teaches the system of claim 1. *Chryssafidou* does not teach at least one confidence value being displayed to a user via a first, qualitative indicator and a second, quantitative indicator. SYSTAT does teach at least one confidence value being displayed to a user via a first, qualitative indicator and a second, quantitative indicator (*see* §Data Input, "Up to 65,536 points in data table", *Examiner asserts a data table can support at least one confidence value being displayed to a user via a first, qualitative indicator and a second, quantitative indicator where the qualitative indicator is a character string in a character in the first cell of a column (e.g., attribute name) and the quantitative indicator is a numeric value in numeric cells below the first cell in a column (e.g., attribute data).*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and SYSTAT* to visualize their data, increase their analytical power with statistics, and completely automate their analysis (*see* SYSTAT, "Overview").

Regarding claim 6. *Chryssafidou* teaches the system of claim 1. *Chryssafidou* does not teach the plurality of parameters comprising a plurality of influence parameters, the influence parameters representing the degree of logical relatedness between respective associated first and second hypotheses. SYSTAT does teach the plurality of parameters comprising a plurality of influence parameters, the influence parameters representing the degree of logical relatedness between

respective associated first and second hypotheses (*see* §Data Input, "Up to 65,536 points in data table", *Examiner takes Official Notice that a data table can represent the plurality of parameters comprising a plurality of influence parameters, the influence parameters representing the degree of logical relatedness between respective associated first and second hypotheses by forming a matrix of the Cartesian product of hypotheses where each cell, F_{ij}, represents the influence of hypothesis j on hypothesis i. As evidence of this fact, Examiner cites page 425 of Russell and Norvig, "Artificial Intelligence: A Modern Approach (2nd Edition)", 2002, wherein the figure on this page shows a data table with hypotheses and a matrix of parameters of degree of logical relatedness.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and SYSTAT* to visualize their data, increase their analytical power with statistics, and completely automate their analysis (*see* SYSTAT, "Overview").

Regarding claim 7. *Chryssafidou* teaches the system of claim 1. *Chryssafidou* does not teach at least one influence parameter being displayed to a user via a first, qualitative indicator and a second, quantitative indicator. SYSTAT does teach at least one influence parameter being displayed to a user via a first, qualitative indicator and a second, quantitative indicator (see above, *Examiner takes Official Notice (see above) that the qualitative indicators are formed by adding an extra row and column to the matrix described above where the row and column contain character values that indicate the hypotheses associated with the quantitative influence parameter, F_{ij}*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and SYSTAT* to visualize their data,

increase their analytical power with statistics, and completely automate their analysis (*see* SYSTAT, "Overview").

Regarding claim 27. *Chryssafidou* teaches the system of claim 26. *Chryssafidou* teaches the means for displaying comprising means for qualitatively displaying the value of the plurality of parameters (*see* p. 5, Figs. 1-3, *Examiner interprets "supports", "refutes", "standpoint", and "argument" as a plurality of parameters.*). *Chryssafidou* does not teach the means for quantitatively displaying the value of the plurality of parameters. However, *SYSTAT* does teach the means for quantitatively displaying the value of the plurality of parameters (*see* §Data Input, "Up to 65,536 points in data table", *Examiner interprets "points" to be a plurality of quantitative parameter values.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and SYSTAT* to visualize their data, increase their analytical power with statistics, and completely automate their analysis (*see* SYSTAT, "Overview").

Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Murphy*, "A Brief Introduction to Graphical Models and Bayesian Networks", 1998.

Regarding claim 13. *Chryssafidou* teaches the system of claim 12. However, *Chryssafidou* does not teach the argument model represented by a Bayesian belief network. Murphy teaches the argument model as a Bayesian belief network (*see* p. 2, §Representation, *"Examiner interprets the random variables to be hypotheses.*"). It would have been obvious at the time the invention

was made to persons having ordinary skill in the art to combine *Chryssafidou and Murphy* in order to provide reasoning under uncertainty.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Wang*, "A Prototype Belief Network-based Expert System Shell", 1990.

Regarding claim 14. *Chryssafidou* teaches the system of claim 12. However, *Chryssafidou* does not teach the argument model represented by a Dempster-Shafer belief network. *Wang*, however, does teach the argument model as a Dempster-Shafer belief network (*see* p. 510, §2. BELFUN System Architecture and Knowledge Base Construction, "BELFUN incoperates the Dempster-Shafer theory of belief functions, belief propagation schemes..."). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and Wang* in order to provide reasoning under uncertainty.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Thompson et al., "AnnotatedHyperIbisDtd (DRAFT)", 2003.*

Regarding claim 15. *Chryssafidou* teaches the system of claim 12. However, *Chryssafidou* does not teach the use of an Extensible Mark-up Language (XML) schema. *Thompson et al.* do teach the use of an Extensible Mark-up Language (XML) (*see* §HyperIBIS Examples and §Markup declarations for HyperIBIS DTD family). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and Thompson et al.* to use a DTD which enables the results of reasoning about evidence to propagate through a

network where the network may take any form from a small intranet-based collaboratory to the entire Internet.

Claims 16, 20, 22, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over *HALLoGRAM*, "PrecisionTree", 2000 in view of *SYSTAT*.

Regarding claim 16. *HALLoGRAM* teaches a method for determining the sensitivity of a hypothesis of interest to a parameter within an argument model (*see* §Sensitivity Analysis, *Examiner interprets a decision to be a hypothesis.*), comprising: providing a continuous mechanism for a user to modify the parameter, such that the user can make multiple modifications to the parameter in rapid sequence (*see* §Sensitivity Analysis, "PrecisionTree modifies the values of the sensitivity variables you specify and records the changes in the expected value of the tree."). *HALLoGRAM* does not teach updating a confidence value associated with the hypothesis of interest in response to the modification of the parameter or altering a display of the confidence value of the hypothesis of interest in real time to match the updated confidence value in response to each modification of the parameter. However, *SYSTAT* does teach updating a confidence value associated with the hypothesis of interest in response to the modification of the parameter (*see* §Data Management, "Spreadsheet-like data editing with optional graphing of data as they are entered", *Examiner asserts that modifying the parameter value associated with a confidence value of a hypothesis of interest updates the confidence value and all references to it.*); and altering a display of the confidence value of the hypothesis of interest in real time to match the updated confidence value in response to each modification of

the parameter (*see* §Data Management, "Spreadsheet-like data editing with optional graphing of data as they are entered", *Examiner asserts that the spreadsheet alters a display of the confidence value of the hypothesis of interest in real time (by iteration) to match the updated confidence value in response to each modification of the parameter.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *HALLoGRAM and SYSTAT* to obtain the means to perform decision analysis in addition to exploratory data analysis.

Regarding claim 20. *HALLoGRAM* teaches the method of claim 16. *HALLoGRAM* does not teach the parameter comprising a confidence value associated with a contributing hypothesis within the structured argument. *SYSTAT* does teach the parameter comprising a confidence value associated with a contributing hypothesis within the structured argument (*see* §Data Input, "Up to 65,536 points in data table", *Examiner asserts a data table may represent the parameters comprising a confidence value associated with a contributing hypothesis within the structured argument where each row represents a confidence value and each column represents a parameter comprising the confidence value.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *HALLoGRAM and SYSTAT* to perform decision analysis in addition to exploratory data analysis.

Regarding claim 22. *HALLoGRAM* teaches the method of claim 16. *HALLoGRAM* does not teach the structured hypothesis comprising at least two contributing hypotheses, the parameter comprising an influence value associated with a logical relationship between the two

contributing hypotheses. *SYSTAT* does teach the parameter comprising a confidence value associated with a contributing hypothesis within the structured argument (*see* §Data Input, "Up to 65,536 points in data table", *Examiner asserts a data table may represent the structured hypothesis comprising at least two contributing hypotheses, the parameter comprising an influence value associated with a logical relationship between the two contributing hypotheses by forming a matrix of the Cartesian product of hypotheses where each cell, F_{ij}, represents the influence of hypothesis j on hypothesis i and each row contains a least two entries.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *HALLoGRAM and SYSTAT* to perform decision analysis in addition to exploratory data analysis.

Regarding claim 24 *HALLoGRAM* teaches a method computer readable medium having computer executable instructions for performing the method of claim 16 (see §Overview, "PrecisionTree is the Decision Analysis Add-In for Microsoft Excel.", *Examiner interprets an Add-In to be a computer readable medium (i.e., file).*).

Claim Objections

4. Claim 32 is objected to because of the following informalities: Claim 32 does not end with a period. Examiner assumes claim 32 ends as: "...confidence values for a plurality of hypotheses." Appropriate correction is required.

Claim Rejections - 35 USC § 101

5. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6. Claims 1-9, 12-16, 18-27, and 29-34 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter: mathematical abstraction and/or software per se.

Claims 1-9 and 12 recite a "system for editing and displaying a structured argument, having a plurality of associated parameters" which is a computer related manufacture. Claims 1-9 recite no data structure. Claims 1-9 and 12 recite the components and mathematical and display parameters of the system, but do claim a computer-readable medium encoded with a data structure that defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized. Claims 1-9 and 12, therefore recite no more than the §101 judicial exceptions of mathematical abstraction or software per se, and are therefore non-statutory under 35 U.S.C. 101.

Claims 13 and 14 recite an "argument model" which is clearly a mathematical abstraction. Claim 15 recites the model being represented in XML, which is simply a string conforming to a grammatical formalism. This is clearly a mathematical abstraction or data. Claims 13-15,

therefore recite no more than the §101 judicial exceptions of mathematical abstraction or software per se. Claims 13-15 recite no physical transformation and the argument model representation recited is not directed to a specific, substantial, and credible result. Therefore, claims 13-15 are non-statutory under 35 U.S.C. 101.

Claims 16 and 18-25 recite a "method for determining the sensitivity of a hypothesis of interest to a parameter within an argument model". Claim 16 recites the component operations of the method, while claims 18-25 provide the details of the display and sensitivity parameters. Thus, these claims are clearly directed to mathematical abstraction, mathematical operations, and/or software per se. While claim 16 recites "providing a continuous mechanism for a user to modify the parameter, such that the user can make multiple modifications to the parameter in rapid sequence" there is no physical transformation involved since all modifications are directed to a parameter of a argument model. The question now becomes, whether the method provides a useful, concrete, and tangible result. It suffices to determine whether the method is useful, i.e., whether it provides a specific, substantial, and credible result. Claim 16 recites, as a result:

> altering a display of the confidence value of the hypothesis of interest in real time to match the updated confidence value in response to each modification of the parameter, wherein the display of the confidence value comprises a qualitative display of the confidence value, such that a non-numerical quality of a node associated with the hypothesis of interest is altered to illustrate a change in the confidence value.

Since "the hypothesis of interest", "the confidence value", "qualitative display of the confidence value", and "a non-numerical quality of a node associated with the hypothesis of interest" are not specific to any problem domain; the result is non-specific and thus not a useful application of the

§101 judicial exceptions of mathematical abstraction, mathematical operations, and/or software per se. Therefore, claims 16 and 18-25 are non-statutory under 35 U.S.C. 101.

Claims 26, 27, and 29 recite a "system for editing and displaying a structured argument". Claim 29 recites the capability "for altering at least one parameter of the structured argument" by the system. Such a system is clearly a computer related manufacture, however, the claims recite no computer-readable medium encoded with a data structure that defines structural and functional interrelationships between the data structure and computer software and hardware components, which permit the system's functionality to be realized. Clearly, claims 26, 27, and 29 recite no more than the §101 judicial exceptions of mathematical abstraction, mathematical operations, and/or software per se and are non-statutory under 35 U.S.C. 101.

Claims 30-34 recite a "system for editing and displaying a structured argument". Claims 30 and 31 recite the system components, model components, and the various operations that can be applied to the model components. Claims 32-34 provide further model and display details of the system. Such a system is clearly a computer related manufacture, but, the claims do not recite a computer-readable medium encoded with a data structure that defines structural and functional interrelationships between the data structure and computer software and hardware components, which permit the system's functionality to be realized. Clearly, claims 30-34 recite no more than the §101 judicial exceptions of mathematical abstraction, mathematical operations, and/or software per se and are thus non-statutory under 35 U.S.C. 101.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claim 26 is rejected under 35 U.S.C. 102(b) as being anticipated by *Chryssafidou.*

Regarding claim 26. *Chryssafidou* teaches a system (*see* Abstract) for editing and displaying a structured argument (*see* p. 10, Fig. 6), comprising a plurality of parameters (*see* p. 10, Fig. 6, *Examiner interprets: claim, argument, support, refute, conjunction, and opposed claims (show in the screen shot key) to be a plurality of associated parameters of a structured argument.*), comprising: means for graphically displaying the plurality of parameters, each having an associated value (*see* p. 10, Fig. 6); the means for displaying comprising means for scaling a displayed argument model to a desired size (*see* p. 10, Fig. 6, *Examiner interprets the drop down memu, currently displaying 100%, to comprising means for scaling a displayed argument model to a desired size.*); means for receiving input from a user, the input comprising a request to modify respective values of at least one selected parameter from the plurality of parameters (*see* p. 10, Fig. 6, "**Tools palette**: This is the main feature of the drawing area where the user designs the argumentation using text boxes, graphic arrows and links."); means for modifying the values of the at least one selected parameter and at least one other parameter from the plurality of

parameters (*see* p. 10, Fig. 6, *Examiner asserts that Fig. 6 shows the palette of modifiable objects representing the parameters of the argument.*); and means for updating the modified parameter values at the means for displaying in real time in response to the user input (*see* p. 10, Fig. 6, "**Tools palette**: ..." and "The system feedback: The system provides feedback on the structure of the arguments –not the content of them- only by request.", *Examiner asserts that the system places the feedback in the commenting area.*).

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

10. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Toda et al.*, "An Argument-Based Agent System with KQML as an Agent Communication Language", 2001.

Regarding claim 1. *Chryssafidou* teaches a system (*see* Abstract) for editing and displaying a structured argument (*see* p. 10, Fig. 6), having a plurality of associated parameters (*see* p. 10, Fig. 6, *Examiner interprets: claim, argument, support, refute, conjunction, and opposed claims*

(show in the screen shot key) to be a plurality of associated parameters of a structured argument.), the system comprising: a user interface that graphically displays the plurality of parameters at a user accessible display and receives input from a user defining the value of a selected parameter (*see* p. 10, Fig. 6); and a computational engine that alters the selected parameter to the defined value, updates the plurality of parameters according to the defined value of the selected parameter, and provides the altered parameters to the user interface, such that the display is updated in real time to reflect the user input (*see* Abstract, *Examiner interprets DIALECTIC to be the computational engine.*). *Chryssafidou* does not teach a simulation function that alters at least one parameter of the structured argument according to a predetermined series of values, representing changes in the at least one parameter over a period of time. However, *Toda et al.* do teach a simulation function that alters at least one parameter of the structured argument according to a predetermined series of values, representing changes in the at least one parameter over a period of time (*see* pp. 55-56, "We have developed a subsystem for the argument-based agent system so that argument processes taken into account issue changes are visualized. In Figure 5, the lower right window displays two argument process trees in which the issue and its argument located in the top node of the left tree has changed into the right one, and the upper window displays an argument tree located in a node of argument process tree.", *Examiner interprets the "argument-based agent system" to be a simulation function and "argument processes ... issue changes ... visualized" to be at least one parameter of the structured argument according to a predetermined series of values, representing changes in the at least one parameter over a period of time.*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and*

Toda et al. in order to obtain argumentation that is tolerant of inconsistencies in the world as well as in data and knowledge bases, in contrast to traditional logics.

11. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Murphy*.

Regarding claim 13. *Chryssafidou* teaches the system of claim 12. However, *Chryssafidou* does not teach the argument model being represented by a Bayesian belief network. Murphy teaches the argument model being represented by a Bayesian belief network (*see* p. 2, §Representation, *"Examiner interprets the random variables to be hypotheses."*). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and Murphy* in order to provide reasoning under uncertainty.

12. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Wang*.

Regarding claim 14. *Chryssafidou* teaches the system of claim 12. However, *Chryssafidou* does not teach the argument model being represented by a Dempster-Shafer belief network. *Wang,* however, does teach the argument model being represented by a Dempster-Shafer belief network (*see* p. 510, §2. BELFUN System Architecture and Knowledge Base Construction, "BELFUN incoperates the Dempster-Shafer theory of belief functions, belief propagation schemes..."). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou and Wang* in order to provide reasoning under uncertainty.

13. Claims 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over *HALLoGRAM* in view of *SYSTAT*.

Regarding claim 16. *HALLoGRAM* teaches a method for determining the sensitivity of a hypothesis of interest to a parameter within an argument model (*see* §Sensitivity Analysis, *Examiner interprets a decision to be a hypothesis.*), comprising: providing a continuous mechanism for a user to modify the parameter, such that the user can make multiple modifications to the parameter in rapid sequence (*see* §Sensitivity Analysis, "PrecisionTree modifies the values of the sensitivity variables you specify and records the changes in the expected value of the tree."), and wherein the display of the confidence value comprises a qualitative display of the confidence value, such that a non-numerical quality of a node associated with the hypothesis of interest is altered to illustrate a change in the confidence value (*see* pp. 1-2, §Overview, "(For example, before you decide where to have a picnic, you need to determine the chance that it will rain.) The result is a tree structure with the "root" on the left and branches for each chance event or decision extending to the right. Probabilities of events occurring and payoffs for events and decisions are added to each node in the tree.", *Examiner interprets "that it will rain" to be the hypothesis, node color (see figure) to be a qualitative display, and "payoffs" to be a type of display of confidence value.*).

HALLoGRAM does not teach updating a confidence value associated with the hypothesis of interest in response to the modification of the parameter or altering a display of the confidence value of the hypothesis of interest in real time to match the updated confidence value in response

to each modification of the parameter, wherein the display of the confidence value comprises a qualitative display of the confidence value, such that a non-numerical quality of a node associated with the hypothesis of interest is altered to illustrate a change in the confidence value. However, *SYSTAT* does teach updating a confidence value associated with the hypothesis of interest in response to the modification of the parameter (*see* §Data Management, "Spreadsheet-like data editing with optional graphing of data as they are entered", *Examiner asserts that modifying the parameter value associated with a confidence value of a hypothesis of interest updates the confidence value and all references to it.*); and altering a display of the confidence value of the hypothesis of interest in real time to match the updated confidence value in response to each modification of the parameter (*see* §Data Management, "Spreadsheet-like data editing with optional graphing of data as they are entered", *Examiner asserts that the spreadsheet alters a display of the confidence value of the hypothesis of interest in real time (by iteration) to match the updated confidence value in response to each modification of the parameter.*).

It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *HALLoGRAM and SYSTAT* to perform decision analysis in addition to exploratory data analysis.

14. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *HALLoGRAM*.

Regarding claim 30. *Chryssafidou* teaches a system (*see* Abstract) for editing and displaying a structured argument, having a plurality of associated parameters (*see* p. 10, Fig. 6), the system comprising: a user interface that graphically displays the plurality of parameters (*see* p. 10, Fig. 6, *Examiner interprets: claim, argument, support, refute, conjunction, and opposed claims (shown in the screen shot key) to be a plurality of associated parameters of a structured argument.*), comprising respective confidence values for a plurality of hypotheses, at a user accessible display and receives input from a user defining the value of a selected parameter (*see* p. 10, Fig. 6); and a computational engine that alters the selected parameter to the defined value, updates the plurality of parameters according to the defined value of the selected parameter, and provides the altered parameters to the user interface, such that the display is updated in real time to reflect the user input (*see* Abstract, *Examiner interprets DIALECTIC to be the computational engine.*).

Chryssafidou does not teach the plurality of hypotheses are displayed as colored nodes within a belief network, and the respective confidence values being represented as at least one of the brightness, hue, and saturation of the color of the node. However, *HALLoGRAM* does teach the plurality of hypotheses are displayed as colored nodes within a belief network, and the respective confidence values being represented as at least one of the brightness, hue, and saturation of the color of the node (*see* pp. 1-2, §Overview, "(For example, before you decide where to have a picnic, you need to determine the chance that it will rain.) The result is a tree structure with the "root" on the left and branches for each chance event or decision extending to the right. Probabilities of events occurring and payoffs for events and decisions are added to each node in the tree.", *Examiner interprets "that it will rain" to be the hypothesis, node color (see figure) to*

be a qualitative display, and "payoffs" to be a type of display of confidence value.). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou* and *HALLoGRAM* to handle alternative decisions, decisions at each stage of some process, and to make the best decisions in a set of alternative decisions.

15. Claims 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over *Chryssafidou* in view of *Toda et al.* and further in view of *HALLoGRAM.*

Regarding claim 31. *Chryssafidou* teaches a system (*see* above) for editing and displaying a structured argument, having a plurality of associated parameters (*see* above), the system comprising: a user interface that graphically displays the plurality of parameters (*see* above), comprising a plurality of influence parameters representing the degree of logical relatedness between respective associated first and second hypotheses, at a user accessible display and receives input from a user defining the value of a selected parameter, wherein the influence parameters are displayed as connectors between respective first nodes, representing the associated first hypotheses, and respective second nodes, representing the associated second hypotheses (*see* p. 10, Fig. 6, *Examiner interprets: claim and argument (shown in the screen shot key) to be* hypotheses. *Examiner interprets: support, refute, conjunction, and opposed claims (show in the screen shot key) to be influence parameters representing the degree of logical relatedness between respective associated first and second hypotheses.*).

Chryssafidou does not teach a computational engine that alters the selected parameter to the defined value, updates the plurality of parameters according to the defined value of the selected

parameter, and provides the altered parameters to the user interface, such that the display is updated in real time to reflect the user input. *Toda et al.* does teach a computational engine that alters the selected parameter to the defined value (*see* pp. 55-56, "We have developed a subsystem for the argument-based agent system so that argument processes taken into account issue changes are visualized. In Figure 5, the lower right window displays two argument process trees in which the issue and its argument located in the top node of the left tree has changed into the right one, and the upper window displays an argument tree located in a node of argument process tree.", *Examiner interprets the "argument-based agent system" to be a computational engine and "argument processes ... issue changes ... visualized" to be at least one parameter of the structured argument according to a predetermined series of values, representing changes in the at least one parameter over a period of time.*), updates the plurality of parameters according to the defined value of the selected parameter (*see* above), and provides the altered parameters to the user interface, such that the display is updated in real time to reflect the user input (*see* above). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou* and *Toda et al.* to in order to obtain argumentation that is tolerant of inconsistencies in the world as well as in data and knowledge bases, in contrast to traditional logics.

Chryssafidou does not teach the magnitude of a given influence parameter is represented by at least one spatial dimension of the associated connector of the influence parameter. *HALLoGRAM* does teach the magnitude of a given influence parameter is represented by at least one spatial dimension of the associated connector of the influence parameter (*see*, §Enter a Decision Tree

Directly In Your Spreadsheet, "For each branch in the tree there is a label, value, and if necessary a probability.", *Examiner interprets a "branch in the tree" to have a connector (node) and "value" or "probability" to be the magnitude of a given influence parameter in* $\boldsymbol{R}^I$.). It would have been obvious at the time the invention was made to persons having ordinary skill in the art to combine *Chryssafidou* and *HALLoGRAM* to handle alternative decisions, decisions at each stage of some process, and to make the best decisions in a set of alternative decisions.

16. Claims 32-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over *HALLoGRAM*.

Regarding claim 32. *HALLoGRAM* teaches the system of claim 31, the plurality of parameters comprising respective confidence values for a plurality of hypotheses (*see* pp. 1-2, §Overview, "(For example, before you decide where to have a picnic, you need to determine the chance that it will rain.) The result is a tree structure with the "root" on the left and branches for each chance event or decision extending to the right. Probabilities of events occurring and payoffs for events and decisions are added to each node in the tree.", *Examiner interprets "that it will rain" to be the hypothesis, node color (see figure) to be a qualitative display, and "payoffs" to be a type of display of confidence value.*).

Regarding claim 33. *HALLoGRAM* teaches the system of claim 32, at least one confidence value being displayed to a user via a first, qualitative indicator and a second, quantitative indicator (see §Decision Analysis, decision tree figures, *Examiner interprets node color to be a qualitative indicator and value or probability to be a quantitative indicator.*).

Regarding claim 34. *HALLoGRAM* teaches the system of claim 32, the plurality of hypotheses being displayed as colored nodes (see §Decision Analysis, decision tree figures) within a belief network (see), and the respective confidence values being represented as at least one of the brightness, hue, and saturation of the color of the node (see §Decision Analysis, decision tree figures).

Response to Arguments

17. Applicant's arguments with respect to claims 1-10, 12-16, 18-27, and 29-34 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Correspondence Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nathan H. Brown, Jr. whose telephone number is 571-272- 8632. The examiner can normally be reached on M-F 0830-1700. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on 571-272-3687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Nathan H. Brown, Jr.
December 1, 2006